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Contributions, vol. i., presented by the Observatory; Potsdam Observatory, Publications, vol. 12, pt. 1, vol. 13, presented by the Observatory; E. J. Spitta, Photo-micrography, presented by the author; Mrs. Todd, Corona and Coronet, being a narrative of the Amherst Eclipse Expedition to Japan, 1896, presented by the author; The Second Washington Catalogue of Stars, presented by the U.S. Naval Observatory; Photographischer Mond-Atlas, part 4, presented by L. Weinek; Photographs of the total solar eclipse of 1898 January 22, presented by C. Burckhalter; Photographs of artificial lunar formations, presented by S. H. R. Salmon; Photographs of fields of stars showing trails of minor planets, &c., presented by Max Wolf.

Report of the Proceedings of the Sydney Observatory for 1898.*

Reference was made in the Report for 1897 to the difficulty introduced into our photographic work by the adoption of incandescent gas-burners for illuminating the city. The light given by these incandescent burners is powerfully actinic, and the dust and smoke of a great city reflects enough of this light to fog long-exposure plates.

To avoid this unexpected difficulty, the Government has granted a sum of money for the removal of the star camera from the city to the site selected some years since for the Observatory. The experiments then made proved that the atmosphere was very much clearer than in the city, so much so that a three hours' exposure there was equal to one of five hours in the city. Redhill, the place referred to, is 615 feet above the sea and eleven miles W.N.W. from the present Observatory.

Measurement of Photographic Plates.—An arrangement has been made by which the measurement of our star plates will at last be undertaken systematically.

The Governments of Victoria and New South Wales have granted the money necessary for measuring the photographic plates, and at a conference of the astronomers of Melbourne and Sydney it was decided to combine the money grants, with the object of making one complete measuring bureau, furnished with the most perfect measuring machines. The work will be done in Melbourne, and the staff is now being trained by Mr. Baracchi.

Transit Circle.—With the transit circle (only one observer) 1,355 transits and 511 meridian zenith distances have been observed. The computations of the meridian observations have

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* This report was received unfortunately too late for insertion in the Annual Report of the Council.

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been completed, and a large volume of arrears in printing now awaits publication.

The daily determinations of collimation, level, and nadir, for determining the progressive motion of the meridian circle, have been continued.

Double Stars.—With the equatorial (one observer) 98 double stars have been measured. 444 position-angle settings and 458 measures of distance were taken.

Comet *Coddington* was observed, and ninety-eight comparisons made with fifteen stars. The transit circle was used fourteen times to determine the comet's position on the meridian.

Star Camera.—With the star camera 247 photographs were taken with 326 exposures. Of these, 152 are chart plates and eighty-eight catalogue plates, and seven on special subjects.

The year has been remarkably dry and dusty, so much so that many nights were too dusty to permit taking photographs.

Meteorology.—The meteorological work has been carried on as usual. The increase in the number of stations goes on, and now they number 1,610. The volume for 1897 has been printed and distributed, and that for 1898 is nearly ready for the press.

During the year there has been added to the recording machines at the Observatory a new form of recording thermometer, which is as sensitive as the ordinary mercurial thermometer.

The usual inspection of meteorological stations has been carried out.

General.—During the year three books and five pamphlets have been published and distributed—in all 4,620 copies have been sent out; and rain and weather charts to the number of 1,800 copies have been distributed.

985 publications of other Observatories have been received and acknowledged.

Visitors show no sign of falling off, rather the reverse. During the year 1,207 visitors came to the Observatory. This is the penalty of having the Observatory in the heart of a large city.

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Determination of the Diameter and Compression of the Planet Mars from Observations with the Repsold Heliometer of the Royal Observatory, Göttingen. (Second Communication.) By Professor W. Schur.

Near the opposition of the present year the following measurements of the polar and equatorial diameters of the planet *Mars* were made, the images being steady :—

Date, 1899.	Mean Time, Göttingen.	Areographic Latitude.	Measured Diameter.		Diameter at Mean Distance from the Sun.	Mean of *h* and *v*.
	h m	°	″		″	″
January 21	8 44	90	14·74	*h*	6·33	6·23
			14·50	*v*	6·23	
		0	14·62	*h*	6·28	6·34
			14·90	*v*	6·40	
		0	14·63	*v*	6·29	6·28
			14·59	*h*	6·27	
		90	14·33	*v*	6·16	6·18
			14·43	*h*	6·20	
		90	14·52	*h*	6·24	6·38
			15·15	*v*	6·51	
		0	14·40	*h*	6·19	6·40
			15·36	*v*	6·60	
		0	15·41	*v*	6·62	6·46
			14·63	*h*	6·29	
		90	14·75	*v*	6·34	6·26
			14·36	*h*	6·17	
January 23	13 15	90	14·59	*h*	6·30	6·24
			14·28	*v*	6·17	
		0	14·24	*h*	6·15	6·22
			14·56	*v*	6·29	
		0	14·21	*v*	6·14	6 21
			14·51	*h*	6·27	
		90	13·87	*v*	5·99	6·05
			14·12	*h*	6·10	
		90	13·87	*h*	5·99	6·07
			14·23	*v*	6·14	
		0	14·23	*h*	6·14	6·17
			14·36	*v*	6·20	
		0	14·26	*v*	6·16	6·14
			14·14	*h*	6·11	